REMARKS

This document is submitted in response to the Office Action dated November 9, 2006 ("Office Action").

Claims 1-26, 30, 35, 40 and 42 have been withdrawn in response to the restriction requirement dated September 26, 2006. Claims 27, 32 and 37 have also been amended to recite the elected subject matter. Further, Applicants have canceled claims 31, 36 and 41, as they are now redundant to amended claims 27, 32 and 37.

Applicants have also replaced the title with a new one as requested by the Examiner.

Upon entry of the proposed amendments, claims 27-29, 32-34 and 37-39 will be under examination. Applicants respectfully request that the Examiner reconsiders the claims, in view of the remarks below.

Specification objection

The Examiner objects to the Abstract for containing an incomplete sentence. See the Office Action, page 2, lines 8-10. According to the example abstracts provided in MPEP 608.01(b), an incomplete sentence is not objectionable. Example (1) starts with the phrase of "[a] heart valve which has an annular valve body defining an orifice and a plurality of struts forming a pair of cages on opposite sides of the orifice," which is an incomplete sentence. See MPEP 608.01(b), under the subheading "Sample Abstracts." Applicants respectfully request that the Examiner withdraws the objection.

The Examiner also objects to the title, "Antivirus RNA," as being not descriptive. See the Office Action, page 2, line 11. Applicants have amended the title to "Antivirus Small Interfering RNA."

Claim objection

Claims 27, 30, 32, 35, 37 and 40 are objected to as being directed to non-elected subject matter. See the Office Action, page 2, lines 13-14. Claims 30, 35 and 40 have been withdrawn from consideration.

Applicants have amended claims 27, 32 and 37 to recite the elected subject matter of (1) a method of reducing/inhibiting expression of a virus gene in a cell comprising introducing an effective amount of a double-stranded RNA, and (2) the nucleic acid sequence of SEQ ID NO:3. Withdrawal of the objection is respectfully requested.

35 U.S.C. § 112, first paragraph

The Examiner rejects claims 27-41 as being not adequately described. See the Office Action, page 3, lines 7-11. Claims 30-31, 35-36 and 40-41 have either been withdrawn from consideration or canceled, mooting the rejection.

The remaining rejected claims recite, among other things, a DNA vector containing a nucleic acid encoding an RNA. The Examiner asserts that, as the Specification only discloses siRNA vectors containing SEQ ID NO:1-10, it does not describe "any structure of a DNA vector comprising a nucleic acid such as a vector comprising an antisense oligonucleotide, a vector comprising an siRNA, a vector comprising a ribozyme ..." See the Office Action, page 3, lines 16-21.

Note that the standard for determining compliance with the written description requirement is whether a patent specification describes the claimed invention sufficiently so that one skilled in the art would recognize that the inventor had possession of the claimed invention at the time of filing the application. See *Vas-Cath, Inc. v. Mahurkar*, 19 USPQ 2d, 1555, 1563 (Fed. Cir., 1991).

Applicants have amended the claims to recite a DNA vector containing a nucleic acid encoding an RNA that hybridizes to a gene segment having the nucleic acid sequence of SEQ ID NO:3. As acknowledged by the Examiner, the Specification describes vectors containing SEQ ID NO:3. See the Office Action, page 3, lines 21-22. Further, the Specification describes the structural and functional characteristics of the now recited DNA vector. See e.g., at page 2, lines 16-28, page 4, lines 13-14, and pages 5-6, bridging paragraph. In view of what is known in the art and disclosed in the Specification, a skilled person would recognize that Applicants had possession of the claimed invention at the time of filing.

Based on the above remarks, Applicants submit that claims 27-29, 32-34, and 37-39 now meet the written description requirement.

35 U.S.C. § 112, second paragraph

Claims 27, 32 and 37 are rejected as being indefinite. See the Office Action, page 4, lines 16-18.

The Examiner points out that these claims depend from claim 1, which is directed to non-elected subject matter. See the Office Action, page 4 and 5, bridging paragraph. She also notes that, since claim 1 is withdrawn from consideration, the term "the RNA" recited in these claims lack antecedent basis. See the Office Action, page 5, lines 3-4. As claims 27, 32 and 37 have been rewritten in independent format, they are no longer indefinite.

The Examiner also contends that the term "containing" recited in claims 27, 32 and 37 is indefinite, as it is unclear whether it is an open-ended or closed-ended transitional phrase. See the Office Action, page 5, lines 8-16. Applicants respectfully disagree. As correctly noted by the Examiner, the term "containing" is synonymous with the term "comprising," which is an open-ended transitional phrase. See the Office Action, page 5, lines 12-16, and MPEP 2111.03. Therefore, the term "containing" is also an open-ended transitional phrase, so that a skilled person would understand the metes and bounds of the claims.

The Examiner also rejects claims 30-31, 35-36 and 40-41 as being indefinite. See the Office Action, page 5, lines 9-18. These claims have either been withdrawn or canceled, rendering the rejection moot.

35 U.S.C. § 102(b)

Claims 27-29 and 32-34 are rejected as being anticipated by Wu et al., Journal of General Virology, 1997, 78:641-647 ("Wu"). See the Office Action, page 6, lines 15-16.

Applicants will address claim 27 first. Claim 27 has been amended to recite a method to reduce the expression of a gene of a virus in a cell by introducing into the cell a double-stranded RNA or a vector containing a nucleic acid from which the RNA can be transcribed. One strand

of the RNA hybridizes to a segment of the viral gene, and the nucleotide sequence of the segment includes SEQ ID NO:3.

According to the Examiner, Wu discloses "a method of reducing/inhibiting HBV infection and expression comprising introducing antisense HBsAg RNA expression vectors in a human hepatoma cell line. See the Office Action, page 6, lines 20-22.

As correctly pointed out by the Examiner, Wu discloses a method of using antisense RNAs. See the Office Action, page 6, lines 20-22. It is well known in the art that an antisense RNA is a single-stranded RNA. On the other hand, amended claim 27 recites a double-stranded RNA. Thus, Wu does not anticipate claim 27.

As amended claim 32 recites a double-stranded RNA, it is also not anticipated by Wu. Neither are claims 28-29, and 31-34, since they depend from claim 27 or 32.

35 U.S.C. § 102(e)

The Examiner rejects all or some of claims 27-41 as being anticipated under 35 U.S.C. § 102(e) based on two grounds. Applicants will address each ground of rejection below.

I

Claims 27-29, 32-34, and 37-39 are rejected as being anticipated by Kay et al., US Patent Application 2003/0139363 ("Kay"). See the Office Action, page 8, lines 1-3. Applicants will again address amended claim 27 first.

The Examiner states that Kay discloses "... a method of reducing viral gene expression...[by] administering a DNA vector encoding an siRNA or shRNA in a mammalian cell, wherein the viral gene is selected from HBV, HCV ... and aphthoviruses ..." See the Office Action, page 8, lines 5-9.

Although Kay does disclose using RNA interference to reduce gene expression, it does not disclose SEQ ID NO:3, which is recited in amended claim 27. Therefore, claim 27 is not anticipated by Kay. Neither are amended claims 32 and 37, as they both recite SEQ ID NO:3. Since claims 28-29, 33-34, and 38-39 depend from claim 27, 32 or 37, they are also not anticipated for at least the same reasons.

II

The Examiner further rejects claims 27-41 as being anticipated by Morrissey et al., US Patent Application Publication 2003/0206887 ("Morrissey"). See the Office Action, page 7, lines 5-6. Claims 30-31, 35-36 and 40-41 have been either withdrawn from consideration or canceled.

The Examiner points out that Morrissey discloses a double-stranded RNA for reducing HBV gene expression. See the Office Action, page 7, lines 15-19. As also pointed out by the Examiner, Morrissey discloses SEQ ID NO:3. See the Office Action, page 7, lines 10-15. However, Applicants submit that Morrissey does not anticipate the claims for the reasons set forth below.

A.

Applicants question the significance of the disclosure of SEQ ID NO:3 in Morrissey, as it lists more than 1500 SEQ ID NOs that cover the entire HBV genomic sequence. In other words, Morrissey merely parsed the HBV genome into hundreds of consecutive segments, and then asserts that any of these sequences is a target for RNA interference without supporting data. There is only one single example showing that a particular double-stranded RNA molecule (sense strand SEQ ID NO:1338/antisense strand SEQ ID NO:1342) reduces HBV gene expression and replication in a cell line. Given the unpredictability in the art of RNA interference, one single example does not enable all of the more than 1500 SEQ ID NOs disclosed in Morrissey. In fact, it is clear from the instant Specification that not all siRNAs work to reduce HBV gene expression in vivo. See, e.g., page 8, lines 16-21, and Table 1 (compare pSUPER, pSUPER-HBsAg-1 and pSUPER-HBsAg-3).

Moreover, Applicants submit that Morrissey merely provides an encyclopedic disclosure of over 1500 sequences targeting the entire genome of HBV, so it does not anticipate a claim reciting the specific sequence of SEQ ID NO: 3. As the court in *Air Product* states, "a prior art reference which contains a broad general disclosure requiring guessing, testing, speculation or 'picking and choosing' from an encyclopedic disclosure will not anticipate." 1983 WL 51915, 219 U.S.P.Q. at 231. Since Morrissey only provides a very broad and general disclosure without

enough specific guidance or data, a skilled person would have to test each sequence or "pick and choose" from more than 1500 sequences to arrived at Applicants' claimed method. Of note, the instant Specification explicitly describe the use of a RNA molecule complementary to SEQ ID NO:3 to inhibit HBV gene expression and replication. See e.g., at page 8, Table 1, and page 11, Table 5.

Accordingly, Applicants submit that Morrissey does not anticipate claims 27-29, 32-34, and 37-39, which are drawn to a method using an RNA molecule corresponding to SEQ ID NO:3

B.

As the Examiner does not specify a 102(e) date for Morrissey, Applicants have attempted to determine the proper date. According to the records in Public PAIR, Morrissey claims priority from the US Provisional Application 60/409,293, filed on September 9, 2002, which claims priority from the US Provisional Application 60/408,378, filed on September 5, 2002, which claims priority from the US Provisional Application 60/406,784, filed on August 29, 2002, which claims priority from the US Provisional Application 60/386,782, filed on June 6, 2002, which is a continuation-in-part of the international application PCT/US02/09187, filed on March 26, 2002.

As stated in MPEP 706.02(f)(10, "[t]he subject matter used in the rejection must be disclosed in the earlier-filed application ... in order for that subject matter to be entitled to the earlier filing date under 35 U.S.C. 102(e)." Applicants submit that SEQ ID NO:3 or its complementary sequence does not appear in the specifications of any of the above listed provisional applications and the international application. Accordingly, Applicants submit that the 102(e) date for Morrissey is its US filing date, September 16, 2002.

To overcome a 102(e) rejection, Applicants may "[file] an affidavit or declaration under 37 CFR 1.131 showing prior invention, if the reference is not a U.S. patent or a U.S. patent application publication claiming the same patentable invention as defined in 37 CFR 41.203(a)." See MPEP 706.02(b). Co-filed with this response is a Declaration under 37 CFR 1.131 by a co-inventor, Wen-Tsan Chang. As shown in the Declaration, Applicants conceived of the invention prior to September 16, 2002, and proceeded to exercise continuous due diligence to reduce the

invention to practice. Applicants then had a provisional application prepared and filed on December 3, 2002 also with due diligence. Thus, Applicants submit that they have properly overcame the 102(e) rejection.

In view of the above remarks, Applicants submit that Morrissey does not anticipate claims 27-29, 32-34, and 37-39, which are directed to a method using a RNA molecule corresponding to SEQ ID NO:3.

CONCLUSION

Based on the foregoing remarks, all pending claims are unobjectionable, described, definite and novel. Allowance of the application is proper, as an early favorable action is respectfully solicited.

Enclosed is a $60 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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